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United States Patent [19]

Bieselin et al.

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[54] **METHOD AND APPARATUS FOR RECORDING AND RETRIEVAL OF AUDIO CONFERENCES**

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[51] Int. Cl.^{6} **H04M 3/56; H04M 3/50**

[52] U.S. Cl. **379/202; 379/67; 379/88; 379/93; 379/96**

[58] Field of Search 379/202, 201, 379/203, 204, 205, 67, 88, 89, 93, 96, 68; 348/13, 14, 15; 370/62, 110.1

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[57] **ABSTRACT**

An innovative recording and playback system to record and play back audio conferences. In one embodiment, the audio recorded during the conference is digitized and placed in blocks of a determined size. These blocks are stored on a computer storage medium such as a disk drive. A data structure is maintained consisting of an identification of the number and location of the voice blocks. Also provided in the data structure is the identification and location of blocks of data corresponding to the conference participants as well as the identification of other information associated with the conference. When the conference is to be played back by the user, the data structure and corresponding blocks are accessed to play back the conference as well as selectively provide the additional information, for example, the spoken names of the conference participants, to the user.

22 Claims, 28 Drawing Sheets
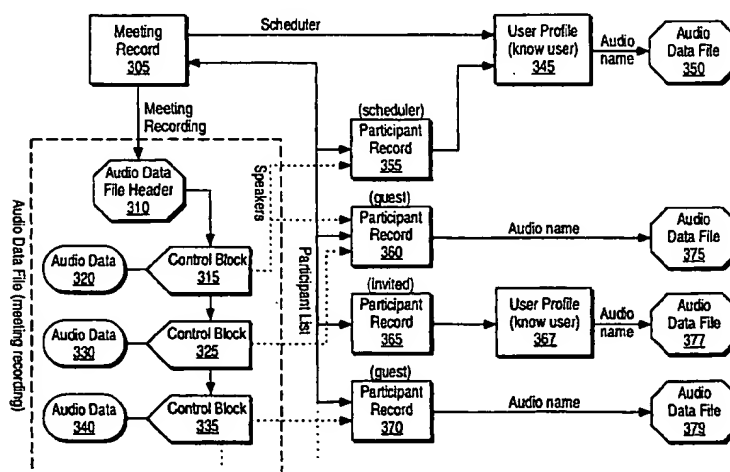
US-PAT-NO: 5559875

DOCUMENT-IDENTIFIER: US 5559875 A

TITLE: Method and apparatus for recording and
retrieval of

                      audio conferences

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Detailed Description Text - DETX (13):
   The meeting record 220 further identifies the participants
to the
conference, and provides a vector to the participant records
225 for the
recorded conference. The participant record 225 provides a
user index 226 to
the user profile record 230 for each registered participant,
and in addition,
provides the pointer to the audio data file header record
that is associated
with the audio data blocks that contain the voice data of the
spoken name of
the identified participant. The spoken name of the
participant is used to
generate audio announcements of the entry, departure and
speakers during the
recorded conference.

Detailed Description Text - DETX (16):
   Similarly, from the meeting record 305, the system can
access the
identification of the scheduler by accessing the user profile
345. From the
user profile record 345, the spoken name of the scheduler is
retrieved from its
audio data file 350 and is played back to the user in audible
form. In
addition, from the user profile record 345, the corresponding
meeting records
305 of conferences the user is an identified participant of,
are identified,
enabling, for example, the generation of a conference list

that the user can
attend.

Detailed Description Text - DETX (24):
   During the conference, the user can perform certain
actions, step 577, to
generate information associated with the audio recording of
the conference.
For example, conference participants who are speaking during
a particular audio
data block can be identified and added to the speaker list in
the current audio
data file control block, step 578. When a conference
participant speaks, the
system detects that a participant has spoken, identifies the
source of the
speech. This can be achieved a number of ways using
technology well known in
the art. For example, circuitry can be used to determine
voice signals on a
particular line card interface; the system can therefore
identify the
conference participant by the line card or input/output port
the conference
participant is coupled to. Alternately, speech processing
which uses a
conference participant's voice print to identify the
conference participant
speaking may be employed.

Claims Text - CLTX (6):
   4. The apparatus as set forth in claim 1, wherein the
audio data file
control block further comprises a speakers field that
identifies conference
participants who are speaking during a portion of the
conference recorded in
the corresponding audio data block.

Claims Text - CLTX (15):
   13. The apparatus as set forth in claim 1, wherein the
audio data file
control block further comprises an entries field that
identifies conference
participants that join the conference during a portion of the

conference
recorded in the corresponding audio data block.

Claims Text - CLTX (17):
   15. The apparatus as set forth in claim 1, wherein the
audio data file
control block further comprises a departure field that
identifies conference
participants that leave the conference during a portion of
the conference
recorded in the corresponding audio data block.

Claims Text - CLTX (46):
   (k) if a user playing back a recorded conference indicates
that the
conference participants are to be identified, reading audio
data file control
blocks corresponding to each audio data block representative
of the spoken name
of each conference participant, said audio data file control
blocks pointed to
by pointers in the meeting record, retrieving the
corresponding audio data
blocks and playing back the voice data stored in the audio
data blocks as audio
to generate the spoken name of each conference participant.

Current US Original Classification - CCOR (1):
   379/202.01